

Tilburg University

Between price reform and privatization

Bomhoff, E.J.

Publication date:
1991

Document Version
Publisher's PDF, also known as Version of record

[Link to publication in Tilburg University Research Portal](#)

Citation for published version (APA):
Bomhoff, E. J. (1991). *Between price reform and privatization: Eastern Europe in transition*. (Reprint Series). CentER for Economic Research.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

CBM
entER
R for
omic Research
8823
1991
71

REPRINT



Between Price Reform and
Privatization: Eastern Europe in
Transition

by
Eduard J. Bomhoff

R 82
C
318.5
302.524

Reprinted from Finanzmarkt und Portfolio
Management, vol. 5, no. 3, 1991

Reprint Series
no. 71



CENTER FOR ECONOMIC RESEARCH

Research Staff

Helmut Bester
Eric van Damme

Board

Helmut Bester
Eric van Damme, director
Arie Kapteyn

Scientific Council

Eduard Bomhoff	Erasmus University Rotterdam
Willem Buiter	Yale University
Jacques Drèze	Université Catholique de Louvain
Theo van de Klundert	Tilburg University
Simon Kuipers	Groningen University
Jean-Jacques Laffont	Université des Sciences Sociales de Toulouse
Merton Miller	University of Chicago
Stephen Nickell	University of Oxford
Pieter Ruys	Tilburg University
Jacques Sijben	Tilburg University

Residential Fellows

Svend Albaek	European University Institute
Pramila Krishnan	San Francisco State University
Jan Magnus	Tilburg University
Eduardo Siandra	UCLA
Dale Stahl II	University of Texas at Austin
Hideo Suehiro	Kobe University

Doctoral Students

Roel Beetsma
Hans Bloemen
Sjaak Hurkens
Frank de Jong
Pieter Kop Jansen

Address: Warandelaan 2, P.O. Box 90153, 5000 LE Tilburg, The Netherlands
Phone : +31 13 663050
Telex : 52426 kub nl
Telefax: +31 13 663066
E-mail : "center@htikub5.bitnet"

ISSN 0924-7874

1991

Between Price Reform and
Privatization: Eastern Europe in
Transition

by
Eduard J. Bomhoff

Reprinted from Finanzmarkt und Portfolio
Management, vol. 5, no. 3, 1991

Reprint Series
no. 71

Between Price Reform and Privatization: Eastern Europe in Transition*

1. Introduction

Several formerly socialist nations in Central and Eastern Europe have been successful in achieving currency convertibility and domestic price reform. In East-Germany, the DM has replaced the Ostmark, and prices of goods and services are dictated by market conditions in the West. Further east, Bulgaria has set a courageous example by going almost all the way to currency convertibility and liberating almost all domestic prices. Poland has travelled far in the same direction, and Czechoslovakia, Hungary and Rumania also are making substantial progress towards a convertible currency and a domestic structure of relative prices that reflects scarcity and costs rather than political considerations.

The progress towards privatization so far appears much less impressive. Admittedly, one sees the establishment of many privately owned small business in almost all the formerly socialist countries, with a predictable emphasis so far on trading companies, followed by retail trade and a variety of other commercial services e.g. taxis and restaurants. By contrast, progress in the privatization of the larger state-owned enterprises that dominated the econo-

mies of central and eastern Europe seems slow and hesitant. In this essay I try to review some of the difficulties that have been encountered so far in the attempts at privatization, and summarize some principles that appear to be important at least to this outside observer.

The principal conclusions of the paper are:

- clarity about property rights has to include resolution of disputes about taxation, in particular an end to quarrels between different units of government about the rights to tax.
- to achieve popular capitalism in the sense that many citizens own a share to a portfolio of large enterprises is less urgent than an ownership structure that creates proper incentives for management and other stakeholders in the firm.
- allowing joint ventures with foreigners creates large incentives for managers in state enterprises to steal at the expense of their companies: freedom to deal threatens to become freedom to steal. The basic problem here is that during the period of transition to privatization, there are no well defined owners of the enterprise-to-be-privatized, so that management can act on the wrong incentives.
- macroeconomic uncertainty seems to be so pervasive, that it is risky to try to fix the exchange rate for long periods.

The next section of the paper continues with a discussion of some of the lessons to be drawn from

* Revised text of a public lecture given in Sofia on April 4, 1991 at the invitation of the Bulgarian Institute of Management and Administration. I am grateful to Prof. Evka Razvigorova-Janakieva and the staff of the institute for their hospitality.

the experience with market reforms. In section three I summarize some modern principles of corporate finance that seem particularly appropriate for the privatization of state-owned enterprises in Central and Eastern Europe. Finally, section four of the paper is concerned with some macroeconomic issues.

2. Lessons from Poland, the Soviet Union and East Germany

2.1 Slow privatization in Poland

On January 1st, 1990 Poland began a program of macroeconomic stabilization, supported by the International Monetary Fund (IMF). The Polish Zloty was fixed at 9,500 Zloty's per U.S. dollar and has been maintained at the level until the time of writing (May 1991). Also, most prices were liberated, and many government subsidies were abolished in order to reduce the deficit of the Polish government. For reasons to be discussed below, these financial reforms were not accompanied by substantial privatization of Polish state enterprises, but a large number of new companies were set up by Polish entrepreneurs.

Table 1: Targets and Outturns, 1990.

	Target 90	Realization 90
Inflation		
Dec. 1990 over Dec. 1989 (%)	95	250
Real wages (%)	-10	-28
Private consumption (%)	-6	-24
Industrial production by state enterprises (%)	-5	-25
Gross domestic product (%)	-5	-12
Unemployment (millions)	0.4	1.1
Government budget deficit (billions of Zloty's)	-3.5	-0.9
International trade surplus in hard currency (billions of U.S. dollars)	-0.8	-3.8

Source: BIESSEN/BOS-KARCEWSKA (1991).

Table 1 shows a number of macroeconomic targets of this stabilization program for 1990 and their realized values.

The most striking aspect of the table is the extremely large gap between the targets for the Polish economy in 1990 and the outturn. Even though the authorities were successful in maintaining a fixed exchange rate throughout the year, the realized average rate of inflation deviated very substantially from the forecast, and so did the outcomes for consumption, wages, production, foreign trade and unemployment. Perhaps the numbers for the government budget form an exception; the forecast - a deficit - had the wrong sign because a surplus was realized in the government's budget, but both forecast and realization are relatively small numbers given the size of the Polish economy.

Such great uncertainty raises doubts about the appropriateness of fixing the exchange rate for a long period. In fact, continued high inflation into 1991 has contributed to a dispute within the Polish government about near term exchange rate policy, with the Polish Planning Bureau, for example, advocating a devaluation of the Zloty, even though this would involve a deviation from the stabilization policy agreed with the IMF.

Such uncertainty about a possible imminent devaluation increases the risk premium in domestic interest rates. Because the extent of a possible devaluation will be large, the risk premium which is directly related to the product of the possible devaluation and its probability, will also be substantial. There are other costs associated with great uncertainty about a possible large discrete move in the nominal exchange rate. First, if domestic money market and savings rates are not yet fully market-determined, substitution by residents of foreign money for domestic money is itself a major cause of domestic inflation, because the demand for domestic money falls whilst its supply is not reduced. Second, further liberation of international payments may be suspended in an attempt to artificially increase the demand for domestic money. Finally, and most important, fixing the nominal exchange rate whilst experiencing domestic inflation greatly in excess of

foreign inflation implies strong real appreciation of the domestic currency. As is well known from instances of real appreciation in the middle-income countries of Latin America, strong real appreciation means that the composition of imports shifts from imports of investment goods to imports of consumer goods, whilst exports suffer from a lack of international competitiveness. Importers and consumers of foreign produced luxury goods exert political pressure to maintain the fixed exchange rate, but each additional month of further real appreciation leads to more serious distortions in relative prices and makes it harder for the country to trade internationally according to its comparative advantage.

Very disappointing so far has been the experience with privatization in Poland. On July 13th 1990 the Polish parliament passed a law on privatization which stipulated that 20 percent of the shares in large privatized state companies should be reserved for the workers. The then Polish government was in favor of spreading ownership of the remaining 80% as widely as possible over the population. However, so far only 8 industrial corporations have been privatized. Difficulties in valuing the assets and liabilities of corporations, the lack of capital markets, and the paucity of domestic savings have been cited as explanations for the lack of success in privatizing the larger enterprises.

More fundamental causes, however, may be found outside of the financial sector. With sharply increasing nationwide unemployment, the workers as represented by the unions may be less than keen on privatization of their own company, reckoning that new management will try to increase labor productivity by cutting employment and selling of those no-core businesses that used to be part of the enterprise - given the strong tendency towards vertical integration under communist rule - but have no place in a more efficient, private company. Also, both workers and management will try to negotiate with the authorities about the conditions of privatization, in particular about forgiving company debt. Finally, a number of observers of the Polish economy have pointed out that the transitional phase with its unclear demarcation of property rights in the

enterprise may suit current management, since the managers have continued tenure as state employees but may at the same time engage in deals involving domestic start-up companies or foreign joint ventures without much control by owners' representatives. According to LIPTON and SACHS (1990): "managers quickly discovered ways to appropriate state property by making sweetheart deals with an outside partner in a process that quickly became known as 'spontaneous privatization.'" Lewandoski and Szomburg call the process "legal parasitism." "...While the government's oversight of joint ventures has been strengthened, there is anecdotal evidence to suggest that at least some joint venture arrangements still serve the self-interest of managers. Also, while new conflict-of-interest laws have been put in place to prohibit spontaneous privatizations through sweetheart deals, the effectiveness of these regulations is not yet clear" (pp. 306-307).

These experiences have contributed to a change of sentiment in Poland regarding privatization of the larger enterprises. It is now more generally recognized that giving a stake in the enterprise to the workers may make sense as a political concession, but should remain limited for two fundamental reasons. First, the well known argument that workers whose future income is tied up to some extent with the fortunes of their company should not also invest their wealth in shares of the same company. Diversification of the workers' wealth calls for investment in other directions. Second, as shown dramatically by the example of Yugoslavia, worker ownership or labor-managed firms are inefficient, because the workers will try to maximize profits per worker or capital per worker rather than total profits of the enterprise. Hence, the workers will resist rational proposals to expand the firm because it will dilute the profitability of the current stock of capital per worker. Also, the labor market becomes very inefficient as older workers will require new entrants to fund their pensions. Lipton and Sachs write: "From an efficiency standpoint, it makes little sense for workers to own their own enterprises (or to lease the capital in their enterprises), except in the case of small, labor-intensive operations. Worker owner-

ship or labor-management tends to cut firms out of the capital markets. Outside investors often shun enterprises in which workers have a controlling interest, since the workers can act opportunistically to absorb all of the income of the firm in the form of wage compensation" (LIPTON/SACHS 1990, pp. 309-311). These theoretical analyses of labor-managed firms explain why in market economies a limited number of activities are organized predominantly by labor-managed firms: accountancy firms, architects, management consultants, sometimes symphony orchestras, all examples of firms where the amount of capital per worker is low and most workers are professionals whose productivity and possible promotions are more easily monitored by peers than by standard management procedures. By contrast, labor-management is almost non-existent in market economies outside these specific areas; in particular, it is very rare to observe successful labor-managed firms in sectors where a large amount of capital per worker is required and production workers can be supervised by management using indicators of output and productivity.

Fortunately, public opinion in Poland appears to accept that the original objectives of substantial worker ownership combined with widespread popular capitalism were inappropriate. There is a growing consensus that designing proper incentives for management and workers is more important (see section 3).

2.2 Legal chaos in the Soviet Union

The Soviet Union currently suffers from unresolved arguments between central government and the republics over who controls policy. With net material product expected to decline by 15% this year on top of an estimated 4% decline in 1990, the weak central government will be unable to close its budget deficit. However, it is dependent for income on the republics where the collection of tax revenues has to be organized. According to THE ECONOMIST (1991c) the republics have only contributed 40 percent of what the central government required them

to hand over in first three months of 1991. In my view, the battle over tax revenues and the authority to impose and collect taxes is extremely debilitating for the Soviet Union at present and will need to be resolved before there is any chance of attracting voluntary private capital from abroad.

A recent story in the THE WALL STREET JOURNAL (1991a) illustrates the current administrative chaos in the Soviet Union by describing the power vacuum in the northerly city of Archangel:

"For almost every new law issued by the Kremlin, the Russian government has passed its own version that amends or blocks the Soviet one. The disputes leave provincial officials uncertain about which laws, if any, to follow."

"Without a union treaty, the war of laws will continue forever," says Sergei Semyonov, an aide to an Archangel deputy in the Russian parliament. "What we need is stability. Unfortunately, there's more noise than reason in our politics."

"Archangel politicians blame some of their difficulties on the cumbersome system of local administration that Mr. Gorbachev has created. The town, an ancient White Sea port built up by Peter the Great, is relatively small, with a population of 400,000. Even so, six separate bodies all have a say in governing it: A regional council oversees the whole Archangel area, which is geographically bigger than France. The regional council's responsibilities overlap, to some extent, with those of the Archangel Town Council and of four separate district councils. Overall, more than 600 deputies are in these bodies. A hierarchy of sorts does exist, with the regional body supposedly more powerful than the Town Council, which in turn has more authority than the district organizations. But the system often breaks down." "Those responsible for passing legislation don't have the authority to implement it, while those charged with implementing decisions don't have the authority to implement it, while those charged with implementing decisions don't bear responsibility for making them. "The structure of power is all wrong", complains Alexander Driker, a deputy in the Town Council. The price of tram tickets is a case in point. The town's transport system is running

at a big loss because in January the national government jacked up the wholesale price of electricity. The town is supposed to pay the difference but doesn't have the money. It also can't raise ticket prices, because that falls under the jurisdiction of the regional council, which hasn't yet consented. Faced with a drain on the town's coffers, the executive committee insisted on action. But after two days of debate in the town assembly last month, deputies refused to sanction price increases; they said only the regional council could do so. Taking matters into its own hands, the executive committee decided to triple tram prices anyway on April 1."

"The Kremlin has greatly increased prices of many goods and services bought by the town. Facing a big deficit, the council has looked for new sources of finance. It unilaterally set new tax rates on all factories on its territory - and immediately ran into a roadblock. Local banks handling all the accounts refused to transfer the new higher amounts to the town, saying Moscow hadn't authorized them to do so. Officials have had no more luck with another ploy to raise revenue. They decided to levy a 15% tax on some local industries over which they are supposed to have jurisdiction. But the factories replied with a curt *nyet*, and the order proved unenforceable. "Nobody observes the 15% tax", says Sergei Zmyotny, a shipyard official. "My opinion is that the council doesn't have real power at the moment."

Before the current attempts at reform, the Soviet Union did not have a proper system of taxation. The Ministry of Finance decided for each branch of industry or even down to the level of individual enterprises how much tax was due; there was no common tariff. In August 1986 the new law on joint ventures with foreigners stipulated a 20% tax on profits. The Soviet government intended to also legislate a uniform profits tax for domestic enterprises, but this was never implemented. Currently new forms of taxation can be imposed by presidential decree, but the individual republics are busy drawing up their own tax laws.

Local tax inspectors often are faced with two contrary tax laws and feel forced to make ad-hoc deci-

sions. Soviet tax officials also still are accustomed to ordering a company's bank to pay the tax as they have assessed it. In sum, power still rests with officials, and there is no clear rule of law in the area of taxation. Until the lines of demarcation between the center and the republics have been clearly drawn, it seems unlikely that the current legal chaos in the Soviet Union will subside. In the mean time, legal uncertainty will spread from the area of taxation to pricing policies for electricity, gas, water and other state-provided goods and services. Units of government that are faced with budget deficits may try to compensate by raising prices of goods and services that are produced under their control, as exemplified by the city council in the Archangel story that tripled the price of tram tickets.

Pervasive legal uncertainty regarding the tax system and uncertainty about future prices for such essential inputs in production as electricity, and public transport, are severe handicaps for private enterprise. One has to fear that a low exchange rate that makes labor cheap by international standards cannot compensate for such fundamental business uncertainties.

2.3 Uncertain property rights in East-Germany

One should be careful when trying to generalize from experience in East Germany to the other formerly socialist countries in Central and Eastern Europe. For, East Germany differed in two fundamental aspects from the other nations: first, its citizens had the constitutional right to establish themselves in the Federal Republic of Germany and to demand social services and housing upon arrival. Once the Wall fell and this right became effective hundreds of thousands of East German citizens voted with their feet and went West. The citizens of the other formerly socialist countries are not entitled to automatic establishment in Western Europe, unless they apply for the uncertain status of political refugees. Second, the German government imposed the West-German DM as the sole legal currency in East Germany on July 1st, 1990, hence establishing a fixed exchange rate between East and West Ger-

many. The only remaining way in which enterprises in East Germany can become competitive internationally by changes in a nominal magnitude is through decreases in the nominal wage in East Germany or by wage subsidies financed by West-German tax payers. In the other formerly socialist economies, business can become more competitive if the exchange rate of the domestic currency is devalued or left free to float downwards on the foreign exchange markets.

Nevertheless, recent events in East Germany contain one important lesson for the other ex-socialist nations. The "Treuhänder" was established to organize the privatization of the large East-German state enterprises. It was faced with a double dilemma: should state enterprises be offered for sale as soon as possible or first be reorganized? Also, was it appropriate to offer enterprises for sale when potential legal issues regarding compensation of former property owners had not yet been settled? The first of these dilemmas was basically up to the management of Treuhänder to decide; the second issue depended on decisions by the German parliament regarding compensation of owners of property that was confiscated by the East German state.

Initially, sales were delayed because there was a preference for reorganization before putting the state conglomerates on the market and second, because the German government was inclined to solve the compensation issue before allowing private sales of enterprises and the land on which they were established. In March of 1991, however, the new economics minister in Germany won an argument inside the German government over the respective priorities of settling compensation issues connected to past forced nationalization and immediate sales of state enterprises. It has now been decided that new investors will obtain the right to continue doing business on disputed property, with issues of compensation to former owners being settled later and separately. Solution of the first dilemma, reorganization before sale, or sale first and reorganization by the new owners is obviously related to serious labor market issues in East Germany. When the two economies of Western East Germany merged on July

1st, 1990, wages in East Germany were fixed at about a third of their level in Western Germany, according to THE ECONOMIST (1991b) roughly in line with relative levels of labor productivity. However, since then wages have risen by over 50% in many industries in the East, in order to prevent workers from exercising their constitutional right to emigrate from East to West. These very substantial wage rises have not been matched by productivity gains, so that the competitive position of the East German firms has deteriorated sharply. This course of events does not imply criticism of last year's decision to impose the West German Mark on the East German Länder and to use a one-to-one ratio in converting wages from Ostmark to DM, because the pressure to equalize wage levels in East and West in order to prevent mass emigration would have existed under any exchange rate arrangement. The need for very large subsidies on wage costs would have arisen in any event, but unfortunately it has been more convenient so far to pay workers to remain attached to their current enterprises than to subsidize entrepreneurs who are prepared to risk setting up new firms or taking over existing companies. But, keeping a large part of the labor force on "short-time work" induces workers to take a wait-and-see attitude instead of inducing them to actively search for better opportunities" (NEUMANN 1991, pp. 22-23).

As in the case of bankruptcies in market economies, asset sales to a new owner, if necessary combined with wiping out (part of the) existing debts, is more efficient from a social point of view than continued operation under previous management with subsidies by the State. For, as NEUMANN (1991) notes "(i) the private investor has the strongest incentive to raise the value of the company by appropriate reconstruction and by contributing new capital, and (ii) he is likely to have the more intimate knowledge and expertise with respect to choosing a promising product mix and marketing." (p. 22)

It never made much sense to postpone privatization until issues of compensation to previous owners had been resolved and settled. For, the state owns all the land and all the larger enterprises in East Germany as

well as virtually all of the housing stock. Hence, the state will also be liable for any compensation to be paid to previous owners who were forced to relinquish their property to the previous socialist state. With the state both the current owner and responsible for compensation, there are obvious social gains and no social losses if property is put to more efficient use as soon as possible through asset sales to new private investors. Not to separate issues of future ownership from issues of compensation to former owners was a serious error which has contributed to the disappointingly slow pace of privatization in East Germany. The same principle would appear to apply in the other formerly socialist economies of Central and Eastern Europe. The most urgent task is to make the economy more efficient through privatization and private ownership. This will broaden the future tax base and put government in a better position to eventually pay damages to owners whose property was confiscated in the past and who are deserving of compensation.

3. Privatization with the Proper Incentives

All formerly socialist countries in Central and Eastern Europe wish to privatize most of their large state-owned enterprises. Private ownership will lead to more efficient production and better use of labor, capital and energy. Also, state ownership has often been shown to be incapable of dynamic efficiency, with a state-owned bus factory in Czechoslovakia, for example, continuing to produce its price-winning bus model for thirty consecutive years. Finally, economic integration of the formerly socialist nations with the world economy requires realistic prices which in turn means abolishing most state subsidies to industry. Privatization can be regarded as a means to make proper relative prices and an industrial sector without heavy subsidization more likely politically.

Both in Poland and in Czechoslovakia the debate about privatization initially focused on striving towards a measure of popular capitalism. All adult citizens were to obtain shares in a portfolio of large

industrial companies or vouchers giving the purchaser the right to obtain such shares at some discount from estimated market value. Presumably public opinion felt strongly that nationalized company assets belonged to the nation as a whole. Also, grave and warranted concerns about environmental problems may have pointed towards widespread ownership of industrial assets, as an institutional means to promote more careful husbandry of precious environmental resources and optimal popular support for costly but more environmentally-conscious industrial policies.

The new Polish government of President Walesa has shifted its privatization policies. Minister Janusz Lewandowski for Ownership Changes wrote: "Too much stress and energy was concentrated on public offerings, to the disadvantage of other methods that are possible under the privatization law." (THE WALL STREET JOURNAL 1991b). According to Minister Lewandowski, the Polish government intends to continue its attempts to achieve widespread share ownership, but now is more keen than before to identify a group of major stakeholders in the company and to ensure that these insiders act on the proper incentives. More worked-out proposals are to be found in the paper by Lipton and Sachs quoted above. These authors rightly note that if ownership of enterprises is too much dispersed, the many individual small owners will have little incentive to monitor management. Hence, "the privatization process should avoid creating an atomistic ownership structure for the large enterprises, in which hundreds of thousands or millions of owners each retain a small number of shares. Most ownership of the large enterprises should be held by intermediary agents such as pension funds, mutual funds, or commercial banks, or by large owners with concentrated stakes" (LIPTON/SACHS 1990, p. 317).

Copying the French experience with privatization of state owned enterprises in the 1980s, Lipton and Sachs advocate the search for a group of core investors who own at least 20% of the shares. For instance, management could take such a share in the company, paying for the shares with borrowed funds. Minister Lewandowski in his Wall Street Journal

article suggests that managers and/or workers could pay for their significant share over a three to six year period after the firm has been valued by an independent consulting service. A significant ownership stake for management if it has been obtained with borrowed funds would create much better incentives for the managers to act in the company's best interests than the current system in Poland which tempts the managers to engage in joint ventures with foreigners in which they have a private interest or to search for other means to enrich themselves at company expense. An essential element would be that management does not obtain its share in the company for free but indeed has to borrow extensively in order to purchase the shares, possibly over a multi-year period.

In this respect, a country like Bulgaria in which most people own their homes has a very significant advantage over nations where private property is much less important. In Bulgaria, one should ask managers to take a mortgage on their homes and on any other real estate they may own in order to purchase their shares in the companies they manage. If the company is successful, they will be able to pay back the loan out of future profits; if they fail the test of the market or do not put their company's interests first, they risk losing their homes.

Additionally, a stake of similar size could be placed privately with either a commercial bank or a pension fund. An outside investor, such as a bank or a pension fund, which acquires a significant stake in the company of 20% or more, has a strong incentive to spend resources monitoring management. Lipton and Sachs write: "The Eastern European economies should aim to develop universal banking, as in Germany and Japan, where the commercial banks hold stakes in corporate assets and play active roles in the oversight of enterprises. The new banks should place representatives on the corporate boards of directors, and strengthen their capacities to participate in the restructurings of troubled firms. Of course, qualified banks cannot be created at once, but it will be far easier to build up the operational capacity of a dozen large banks (perhaps through management contracts with foreign banks) than to

rely on the decentralized oversight of thousands of individual enterprises (LIPTON/SACHS 1990, pp. 318 and 319).

Proponents of a corporate financial structure for the privatized enterprises of Eastern Europe, that emphasizes a major stake for management paid for with borrowed funds and another substantial stake in the hands of a professionally managed financial institution, aim at creating the proper incentives. This is particularly important because the formerly socialist countries lack developed financial markets, a sophisticated financial press and even an indigenous accountancy profession that is familiar with market-based systems of financial accounting. Therefore, the marketable assets of the firm should be pledged to the bank or pension fund that has a significant stake, so that this financial institution has a reasonable chance of recovering the full value of its investment even in the event of moderately adverse developments. The managers should pledge their personal assets, so as to create the proper incentives against the growth of managerial perks - unnecessary foreign travel, blurring of the distinctions between company property and private property etc. - and to make sure that managers identify their personal business interests with those of the company.

The proposal that management should borrow against the value of its personal assets - a home or real estate - also applies in the case of start-up companies. Robert HALL (1988) writes: "In every situation I know of involving a small business and a bank, the bank extracts security interest in the homes and other assets of the managers, which is exactly in line with this idea that there should be a non contingent pledge that there be no effect to the equity interest of the bank whatsoever. That is, the bank should get its value out no matter what happens just as the entrepreneurs get to keep the proceeds of their successes. In a start-up situation, the incentive problems are particularly acute. If you look at the kind of a deal a venture capitalist (the wealthholder) should make with the entrepreneurs, it has the following character: the venture capitalists should have a full liquidation preference and the principals should invest

all of their personal wealth, including all available house equity." (p. 75).

Hall makes a case in this paper for legislation that prevents hostile takeovers of the company during the period (3-6 years?) in which managers are still paying off the bank loans they needed to purchase their share in the enterprise. He does "not support the general hostility of finance economists to measures that defend the corporation against hostile takeovers. Those measures are part of the way the managers are given effective ownership of the internal equity."

4. Macroeconomic Uncertainties

The experiences in Poland, the Soviet Union and East Germany which were discussed in section 2 above also carry a number of macroeconomic implications. In Poland, the now available numbers for all of 1990 convincingly show that fixing the exchange rate for a long period does not deliver stable domestic prices. Inflation in Poland as measured in Zloty's amounted to 249 percent for the full year. Monthly rates of inflation varied substantially but were not yet during this period a source of pressure on the exchange rate, because of the developments in the balance of trade. In fact, during 1990 some observers even felt that a revaluation should be put on the agenda as the trade balance moved into considerable surplus (300-400 million dollars monthly) during the period March-July. Monthly figures for the balance of trade remained positive through October, but then turned sharply negative with the December number an unsustainable 500 million dollar deficit.

Given the large fluctuations in domestic prices and real wages in Poland, it is not so clear whether the fixing of the exchange rate contributed much to stability during 1990, with one essential exception: the surpluses on international trade allowed the country to build up its foreign exchange reserves. Being able to dispose of a meaningful stock of international reserves will greatly increase the credibility and forecastability of future monetary policy.

If only because there are no substantial stocks of domestic currency held outside the country, it makes little sense at present to advocate purely floating exchange rate for the formerly socialist nations. For, if their exchange rates are not fixed, there is likely to be a "managed" float. In order to insulate the exchange rate somewhat over the short-term from the latest balance of payments data, it will be helpful if the authorities have a stock of international reserves to smooth short-term flow demands for hard currencies. Note, that this suggestion does not at all imply squandering the international reserves on interventions to maintain an overvalued exchange rate, the fatal mistake often made in Latin America! The Soviet experiences have shown the costs in terms of greater uncertainty of a lack of international reserves. According to THE ECONOMIST (1991a): "As export revenues fall, increasingly desperate measures have been needed to meet debt obligations: 40% of Soviet firms' export earnings are taxed to pay interest bills. Of the dollars they have left, 90% must be paid into a special hard-currency fund controlled jointly by the central government and the republics. These measures have wrecked the attractions for local companies of international trade. Yet, drastic as they are, they are still inadequate."

Some Eastern European countries expect substantial credits from international organizations during 1991. It would seem attractive to add such capital inflows to the international reserves at the Central Bank and set up either a managed float for the exchange rate or a system of very frequent auctions of foreign exchange where companies and individuals could bid for hard currencies. Such a system would seem to be preferable to directly allocating scarce foreign exchange to business firms, because this will unavoidably lead to a political bias in favor of large established companies and effectively reduce the chances for new or smaller firms to obtain foreign exchange through official channels.

In my view (BOMHOFF 1990), the fixing of the exchange rate of the Zloty in January 1990 has not provided a nominal anchor to the Polish economy, but rather has served the useful purpose of allowing Poland to build up a stock of international reserves

which will not only enhance the credibility of its future and nominal policies but also contribute to an increase in business confidence. The nominal anchor has not been provided so far by a fixed exchange rate; neither can it be derived from a money growth rule as, for instance, followed with success by Germany, because the domestic demand for money is still too unstable. Elsewhere I have recommended using indicators of nominal wages as the best available nominal gauge for the economy during the difficult transitional period.

The importance of nominal stability however strived for, is beyond doubt. A necessary condition is sufficient credibility of the domestic money and no more than a very modest role for foreign currencies as medium of transactions between domestic residents. In Poland at the end of 1989 a full 73 percent of money held by households and private enterprises consisted of foreign currency deposits with only 27 percent consisting of currency, demand deposits or interest-bearing deposits in Zloty's. Such a reduced role for the domestic currency suggests incipient hyperinflation, because any addition to the circulation of domestic money through the printing press will be an ever larger percentage of the outstanding stock of domestic currency if residents continue to substitute hard currencies for domestic money. Experience in developed market economies has shown that government revenues from seigniorage can amount to 2-3% of gnp, but only if there is no large-scale currency substitution by domestic residents (DORNBUSCH 1988). There is no way in which a government can finance 2-3% of gdp through the printing press without incurring a hyperinflation if foreign currencies already are more important than domestic currency in the economy. In order to promote the role of the domestic currency, the Bulgarian Central Bank has recently decided to terminate the practice of selling luxury goods for foreign currency only. In a very initial phase of economic liberalization such special stores that only accept foreign currency may make some sense as a means to attract foreign currency out of the black market into the open; once the decision has been taken to move towards convertibility of the currency,

the obvious aim of the monetary authorities will be to strengthen the role of the domestic currency in all domestic transactions. In this perspective, the decision to abolish the hard-currency requirement for the purchase of luxury goods is sensible. Only after the domestic currency has established its dominant role in domestic transactions one can hope to achieve a situation in which the demand for domestic money stabilizes so that the authorities can have more confidence in setting a path for the growth of a domestic monetary aggregate.

Recent experience in the Soviet Union has shown the debilitating effects of uncertainty about taxation: which units of government are entitled to impose taxes? When such fundamental disputes are not resolved, central, regional or local units of government will resort to increases in the relative prices of goods and services they supply in order to make up shortfalls in their budgets. Hence, the sudden increases in prices of energy, public transport etc. which in part are symptoms of unresolved conflicts about taxation.

Uncertainty in the area of taxation will also make it more difficult to show both domestic residents and potential foreign investors that a definite break has been made with the past as far as the style of government is concerned. It is crucial that the formerly socialist nations show that decisions relating to individual citizens or corporations are subject to the rule of law and no longer depend on individual negotiations as in the past. A market system requires strict adherence to the rule of law in all areas relating to business decision-making, since otherwise forward planning becomes impossible and corruption will not be reduced.

Promotion of the rule of law is also important for more general reasons. Several observers have pointed out that citizens and corporations in Central and Eastern Europe experience the need to reflect on the morals appropriate to a market society. According to the FINANCIAL TIMES (1991): "Many Poles only now understand the true nature of the corruption that was an essential part of the communist system. The authorities wanted people to cheat, lie and steal because it allowed the possibility of locking up

troublemakers on the basis of the ordinary criminal code, rather than for clearly political offenses. Today there is growing recognition that the state is not theirs" any more but "ours". However, when an acquaintance went to the tax office in Warsaw to declare, for the first time, his foreign earnings, an official asked him why on earth he was bothering." Government should set an example by showing that the rule of law governs commercial affairs and that businessmen do not need to negotiate with state officials about access to foreign exchange, their tax liabilities or any other issues with legal and financial aspects. A necessary (but not sufficient) condition is a clear tax system that outlines the rights of different units of government to impose and collect taxes.

Finally, events in both Poland and East Germany have clarified what commercial bankers can and cannot do. Commercial banks provide credit at a fixed rate of interest implying that if the enterprise or individual to whom they lend has greater-than-expected success, they do not share in such a favorable outcome. Because of this limited "upside" potential, banks can also not afford to suffer more than the occasional loss of principal. Hence, commercial bankers will always require collateral (security) to the full extent of their exposure. It therefore would be unrealistic to expect commercial banks to provide finance on the basis of a business plan drawn up under conditions of extreme uncertainty regarding future movements of prices, wages, domestic demand and the exchange rate, without offering the security of assets that have a likely liquidation value at least equal to the credit provided.

Both the privatization of state enterprises and the start of new companies therefore requires that management takes a significant stake in the company and offers its personal assets as collateral for the purchase of shares. In a country like Bulgaria in which many people own their homes, private residences can be pledged as collateral; otherwise managers should accept that their wages over a 3-6 year period would be reduced in order to pay for the purchase of their share in the company. In case domestic residents do not possess the wealth re-

quired to offer collateral for the purchase of company shares, government should consider rapid denationalization of the housing stock and of agricultural land in order to provide its citizens with more collateral. The realistic alternative would be to induce foreign investors to pledge part of their wealth as collateral for purchase of significant stakes in domestic companies. Under all circumstances it would appear unrealistic to expect commercial banks to provide credit for the purchase of shares in privatized companies unless security up to the amount of the loan is provided.

References

- BOMHOFF, E.J. (1990): "Currency Convertibility: When and How? A Contribution to the Bulgarian Debate", forthcoming, *Kredit und Kapital*.
- BIESSEN, G. and M. BOS-KARCZEWSKA (1991): "The Polish Transition" (in Dutch), *Economisch Statistische Berichten*, April 10, pp. 368-371.
- DORNBUSCH, R. (1988): "The European Monetary System, the Dollar and the Yen", *The European Monetary System*, edited by Francesco Gavazzi, Stefano Micossi and Marcus Miller, Cambridge University Press, pp. 23-47.
- FINANCIAL TIMES (1991): April 13.
- HALL, R.E. (1988): "Financial Factors in Business Fluctuations", *Financial Market Volatility*, Federal Reserve Bank of Kansas City, pp. 73-78.
- LIPTON, D. and J. SACHS (1990): "Privatization in Eastern Europe", *Brookings Papers on Economic Activity II*, pp. 293-342.
- NEUMANN, M.J.M. (1991): "German Unification: Economic Problems and Consequences", paper prepared for Carnegie-Rochester Public Policy Conference, April 19-20.
- THE ECONOMIST (1991a): March 16.
- THE ECONOMIST (1991b): April 6.
- THE ECONOMIST (1991c): April 27.
- THE WALL STREET JOURNAL (1991a): March 21.
- THE WALL STREET JOURNAL (1991b): March 29.

Reprint Series, Center, Tilburg University, The Netherlands:

- No. 1 G. Marini and F. van der Ploeg, Monetary and fiscal policy in an optimising model with capital accumulation and finite lives, The Economic Journal, vol. 98, no. 392, 1988, pp. 772 - 786.
- No. 2 F. van der Ploeg, International policy coordination in interdependent monetary economies, Journal of International Economics, vol. 25, 1988, pp. 1 - 23.
- No. 3 A.P. Barten, The history of Dutch macroeconomic modelling (1936-1986), in W. Driehuis, M.M.G. Fase and H. den Hartog (eds.), Challenges for Macroeconomic Modelling, Contributions to Economic Analysis 178, Amsterdam: North-Holland, 1988, pp. 39 - 88.
- No. 4 F. van der Ploeg, Disposable income, unemployment, inflation and state spending in a dynamic political-economic model, Public Choice, vol. 60, 1989, pp. 211 - 239.
- No. 5 Th. ten Raaij and F. van der Ploeg, A statistical approach to the problem of negatives in input-output analysis, Economic Modelling, vol. 6, no. 1, 1989, pp. 2 - 19.
- No. 6 E. van Damme, Renegotiation-proof equilibria in repeated prisoners' dilemma, Journal of Economic Theory, vol. 47, no. 1, 1989, pp. 206 - 217.
- No. 7 C. Mulder and F. van der Ploeg, Trade unions, investment and employment in a small open economy: a Dutch perspective, in J. Muysken and C. de Neubourg (eds.), Unemployment in Europe, London: The MacMillan Press Ltd, 1989, pp. 200 - 229.
- No. 8 Th. van de Klundert and F. van der Ploeg, Wage rigidity and capital mobility in an optimizing model of a small open economy, De Economist 137, nr. 1, 1989, pp. 47 - 75.
- No. 9 G. Dhaene and A.P. Barten, When it all began: the 1936 Tinbergen model revisited, Economic Modelling, vol. 6, no. 2, 1989, pp. 203 - 219.
- No. 10 F. van der Ploeg and A.J. de Zeeuw, Conflict over arms accumulation in market and command economies, in F. van der Ploeg and A.J. de Zeeuw (eds.), Dynamic Policy Games in Economics, Contributions to Economic Analysis 181, Amsterdam: Elsevier Science Publishers B.V. (North-Holland), 1989, pp. 91 - 119.
- No. 11 J. Driffill, Macroeconomic policy games with incomplete information: some extensions, in F. van der Ploeg and A.J. de Zeeuw (eds.), Dynamic Policy Games in Economics, Contributions to Economic Analysis 181, Amsterdam: Elsevier Science Publishers B.V. (North-Holland), 1989, pp. 289 - 322.
- No. 12 F. van der Ploeg, Towards monetary integration in Europe, in P. De Grauwe e.a., De Europese Monetair Integratie: vier visies, Wetenschappelijke Raad voor het Regeringsbeleid V 66, 's-Gravenhage: SDU uitgeverij, 1989, pp. 81 - 106.

- No. 13 R.J.M. Alessie and A. Kapteyn, Consumption, savings and demography, in A. Wenig, K.F. Zimmermann (eds.), Demographic Change and Economic Development, Berlin/Heidelberg: Springer-Verlag, 1989, pp. 272 - 305.
- No. 14 A. Hoque, J.R. Magnus and B. Pesaran, The exact multi-period mean-square forecast error for the first-order autoregressive model, Journal of Econometrics, vol. 39, no. 3, 1988, pp. 327 - 346.
- No. 15 R. Alessie, A. Kapteyn and B. Melenberg, The effects of liquidity constraints on consumption: estimation from household panel data, European Economic Review 33, no. 2/3, 1989, pp. 547 - 555.
- No. 16 A. Holly and J.R. Magnus, A note on instrumental variables and maximum likelihood estimation procedures, Annales d'Économie et de Statistique, no. 10, April-June, 1988, pp. 121 - 138.
- No. 17 P. ten Hacken, A. Kapteyn and I. Woittiez, Unemployment benefits and the labor market, a micro/macro approach, in B.A. Gustafsson and N. Anders Klevmarken (eds.), The Political Economy of Social Security, Contributions to Economic Analysis 179, Amsterdam: Elsevier Science Publishers B.V. (North-Holland), 1989, pp. 143 - 164.
- No. 18 T. Wansbeek and A. Kapteyn, Estimation of the error-components model with incomplete panels, Journal of Econometrics, vol. 41, no. 3, 1989, pp. 341 - 361.
- No. 19 A. Kapteyn, P. Kooreman and R. Willemse, Some methodological issues in the implementation of subjective poverty definitions, The Journal of Human Resources, vol. 23, no. 2, 1988, pp. 222 - 242.
- No. 20 Th. van de Klundert and F. van der Ploeg, Fiscal policy and finite lives in interdependent economies with real and nominal wage rigidity, Oxford Economic Papers, vol. 41, no. 3, 1989, pp. 459 - 489.
- No. 21 J.R. Magnus and B. Pesaran, The exact multi-period mean-square forecast error for the first-order autoregressive model with an intercept, Journal of Econometrics, vol. 42, no. 2, 1989, pp. 157 - 179.
- No. 22 F. van der Ploeg, Two essays on political economy: (i) The political economy of overvaluation, The Economic Journal, vol. 99, no. 397, 1989, pp. 850 - 855; (ii) Election outcomes and the stockmarket, European Journal of Political Economy, vol. 5, no. 1, 1989, pp. 21 - 30.
- No. 23 J.R. Magnus and A.D. Woodland, On the maximum likelihood estimation of multivariate regression models containing serially correlated error components, International Economic Review, vol. 29, no. 4, 1988, pp. 707 - 725.
- No. 24 A.J.J. Talman and Y. Yamamoto, A simplicial algorithm for stationary point problems on polytopes, Mathematics of Operations Research, vol. 14, no. 3, 1989, pp. 383 - 399.

- No. 25 E. van Damme, Stable equilibria and forward induction, Journal of Economic Theory, vol. 48, no. 2, 1989, pp. 476 - 496.
- No. 26 A.P. Barten and L.J. Bettendorf, Price formation of fish: An application of an inverse demand system, European Economic Review, vol. 33, no. 8, 1989, pp. 1509 - 1525.
- No. 27 G. Noldeke and E. van Damme, Signalling in a dynamic labour market, Review of Economic Studies, vol. 57 (1), no. 189, 1990, pp. 1 - 23
- No. 28 P. Kop Jansen and Th. ten Raa, The choice of model in the construction of input-output coefficients matrices, International Economic Review, vol. 31, no. 1, 1990, pp. 213 - 227.
- No. 29 F. van der Ploeg and A.J. de Zeeuw, Perfect equilibrium in a model of competitive arms accumulation, International Economic Review, vol. 31, no. 1, 1990, pp. 131 - 146.
- No. 30 J.R. Magnus and A.D. Woodland, Separability and aggregation, Economica, vol. 57, no. 226, 1990, pp. 239 - 247.
- No. 31 F. van der Ploeg, International interdependence and policy coordination in economies with real and nominal wage rigidity, Greek Economic Review, vol. 10, no. 1, June 1988, pp. 1 - 48.
- No. 32 E. van Damme, Signaling and forward induction in a market entry context, Operations Research Proceedings 1989, Berlin-Heidelberg: Springer-Verlag, 1990, pp. 45 - 59.
- No. 33 A.P. Barten, Toward a levels version of the Rotterdam and related demand systems, Contributions to Operations Research and Economics, Cambridge: MIT Press, 1989, pp. 441 - 465.
- No. 34 F. van der Ploeg, International coordination of monetary policies under alternative exchange-rate regimes, Advanced Lectures in Quantitative Economics, London-Orlando: Academic Press Ltd., 1990, pp. 91 - 121.
- No. 35 Th. van de Klundert, On socioeconomic causes of 'wait unemployment', European Economic Review, vol. 34, no. 5, 1990, pp. 1011 - 1022.
- No. 36 R.J.M. Alessie, A. Kapteyn, J.B. van Lochem and T.J. Wansbeek, Individual effects in utility consistent models of demand, in J. Hartog, G. Ridder and J. Theeuwes (eds.), Panel Data and Labor Market Studies, Amsterdam: Elsevier Science Publishers B.V. (North-Holland), 1990, pp. 253 - 278.
- No. 37 F. van der Ploeg, Capital accumulation, inflation and long-run conflict in international objectives, Oxford Economic Papers, vol. 42, no. 3, 1990, pp. 501 - 525.
- No. 38 Th. Nijman and F. Palm, Parameter identification in ARMA Processes in the presence of regular but incomplete sampling, Journal of Time Series Analysis, vol. 11, no. 3, 1990, pp. 239 - 248.

- No. 39 Th. van de Klundert, Wage differentials and employment in a two-sector model with a dual labour market, Metroeconomica, vol. 40, no. 3, 1989, pp. 235 - 256.
- No. 40 Th. Nijman and M.F.J. Steel, Exclusion restrictions in instrumental variables equations, Econometric Reviews, vol. 9, no. 1, 1990, pp. 37 - 55.
- No. 41 A. van Soest, I. Woittiez and A. Kapteyn, Labor supply, income taxes, and hours restrictions in the Netherlands, Journal of Human Resources, vol. 25, no. 3, 1990, pp. 517 - 558.
- No. 42 Th.C.M.J. van de Klundert and A.B.T.M. van Schaik, Unemployment persistence and loss of productive capacity: a Keynesian approach, Journal of Macroeconomics, vol. 12, no. 3, 1990, pp. 363 - 380.
- No. 43 Th. Nijman and M. Verbeek, Estimation of time-dependent parameters in linear models using cross-sections, panels, or both, Journal of Econometrics, vol. 46, no. 3, 1990, pp. 333 - 346.
- No. 44 E. van Damme, R. Selten and E. Winter, Alternating bid bargaining with a smallest money unit, Games and Economic Behavior, vol. 2, no. 2, 1990, pp. 188 - 201.
- No. 45 C. Dang, The D_1 -triangulation of T^n for simplicial algorithms for computing solutions of nonlinear equations, Mathematics of Operations Research, vol. 16, no. 1, 1991, pp. 148 - 161.
- No. 46 Th. Nijman and F. Palm, Predictive accuracy gain from disaggregate sampling in ARIMA models, Journal of Business & Economic Statistics, vol. 8, no. 4, 1990, pp. 405 - 415.
- No. 47 J.R. Magnus, On certain moments relating to ratios of quadratic forms in normal variables: further results, Sankhya: The Indian Journal of Statistics, vol. 52, series B, part. 1, 1990, pp. 1 - 13.
- No. 48 M.F.J. Steel, A Bayesian analysis of simultaneous equation models by combining recursive analytical and numerical approaches, Journal of Econometrics, vol. 48, no. 1/2, 1991, pp. 83 - 117.
- No. 49 F. van der Ploeg and C. Withagen, Pollution control and the ramsey problem, Environmental and Resource Economics, vol. 1, no. 2, 1991, pp. 215 - 236.
- No. 50 F. van der Ploeg, Money and capital in interdependent economies with overlapping generations, Economica, vol. 58, no. 230, 1991, pp. 233 - 256.
- No. 51 A. Kapteyn and A. de Zeeuw, Changing incentives for economic research in the Netherlands, European Economic Review, vol. 35, no. 2/3, 1991, pp. 603 - 611.
- No. 52 C.G. de Vries, On the relation between GARCH and stable processes, Journal of Econometrics, vol. 48, no. 3, 1991, pp. 313 - 324.

- No. 53 R. Alessie and A. Kapteyn, Habit formation, interdependent preferences and demographic effects in the almost ideal demand system, The Economic Journal, vol. 101, no. 406, 1991, pp. 404 - 419.
- No. 54 W. van Groenendaal and A. de Zeeuw, Control, coordination and conflict on international commodity markets, Economic Modelling, vol. 8, no. 1, 1991, pp. 90 - 101.
- No. 55 F. van der Ploeg and A.J. Markink, Dynamic policy in linear models with rational expectations of future events: A computer package, Computer Science in Economics and Management, vol. 4, no. 3, 1991, pp. 175 - 199.
- No. 56 H.A. Keuzenkamp and F. van der Ploeg, Savings, investment, government finance, and the current account: The Dutch experience, in G. Alogoskoufis, L. Papademos and R. Portes (eds.), External Constraints on Macroeconomic Policy: The European Experience, Cambridge: Cambridge University Press, 1991, pp. 219 - 263.
- No. 57 Th. Nijman, M. Verbeek and A. van Soest, The efficiency of rotating-panel designs in an analysis-of-variance model, Journal of Econometrics, vol. 49, no. 3, 1991, pp. 373 - 399.
- No. 58 M.F.J. Steel and J.-F. Richard, Bayesian multivariate exogeneity analysis - an application to a UK money demand equation, Journal of Econometrics, vol. 49, no. 1/2, 1991, pp. 239 - 274.
- No. 59 Th. Nijman and F. Palm, Generalized least squares estimation of linear models containing rational future expectations, International Economic Review, vol. 32, no. 2, 1991, pp. 383 - 389.
- No. 60 E. van Damme, Equilibrium selection in 2×2 games, Revista Espanola de Economia, vol. 8, no. 1, 1991, pp. 37 - 52.
- No. 61 E. Bennett and E. van Damme, Demand commitment bargaining: the case of apex games, in R. Selten (ed.), Game Equilibrium Models III - Strategic Bargaining, Berlin: Springer-Verlag, 1991, pp. 118 - 140.
- No. 62 W. Güth and E. van Damme, Gorbys games - a game theoretic analysis of disarmament campaigns and the defense efficiency - hypothesis -, in R. Avenhaus, H. Karkar and M. Rudnianski (eds.), Defense Decision Making - Analytical Support and Crisis Management, Berlin: Springer-Verlag, 1991, pp. 215 - 240.
- No. 63 A. Roell, Dual-capacity trading and the quality of the market, Journal of Financial Intermediation, vol. 1, no. 2, 1990, pp. 105 - 124.
- No. 64 Y. Dai, G. van der Laan, A.J.J. Talman and Y. Yamamoto, A simplicial algorithm for the nonlinear stationary point problem on an unbounded polyhedron, Siam Journal of Optimization, vol. 1, no. 2, 1991, pp. 151 - 165.
- No. 65 M. McAleer and C.R. McKenzie, Keynesian and new classical models of unemployment revisited, The Economic Journal, vol. 101, no. 406, 1991, pp. 359 - 381.

- No. 66 A.J.J. Talman, General equilibrium programming, Nieuw Archief voor Wiskunde, vol. 8, no. 3, 1990, pp. 387 - 397.
- No. 67 J.R. Magnus and B. Pesaran, The bias of forecasts from a first-order autoregression, Econometric Theory, vol. 7, no. 2, 1991, pp. 222 - 235.
- No. 68 F. van der Ploeg, Macroeconomic policy coordination issues during the various phases of economic and monetary integration in Europe, European Economy - The Economics of EMU, Commission of the European Communities, special edition no. 1, 1991, pp. 136 - 164.
- No. 69 H. Keuzenkamp, A precursor to Muth: Tinbergen's 1932 model of rational expectations, The Economic Journal, vol. 101, no. 408, 1991, pp. 1245 - 1253.
- No. 70 L. Zou, The target-incentive system vs. the price-incentive system under adverse selection and the ratchet effect, Journal of Public Economics, vol. 46, no. 1, 1991, pp. 51 - 89.
- No. 71 E. Bomhoff, Between price reform and privatization: Eastern Europe in transition, Finanzmarkt und Portfolio Management, vol. 5, no. 3, 1991, pp. 241 - 251.

P.O. BOX 90153 5000 LE TILBURG THE NETHERLANDS

Bibliotheek K. U. Brabant



17 000 01169734 0